

Flight Scientist Report
Thursday 12/9/2021 ACTIVATE RF98

Flight Type: Statistical Survey Flight

Flight Route: KOQU 3824N06745W ZIBUT ATLIC KFLI

Special Notes: This is the second flight of a 2-part refueling flight with a stop in Quonset State Airport (Rhode Island). Really nice cloud conditions with transitions between open/closed cells. Extra dropsondes to characterize differences across the cloud field.

King Air

Pilot report (Wusk):

Cooperative flight with HU-25; second flight of a two flight day. Return from refueling stop in New England. Planned KOQU-3824N06745W-ZIBUT-ATLIC-KLFI. Take off Runway 34 ~couple minutes ahead of HU-25. Forward FOD door opened only with assist by researcher.

Uninterrupted climb on course through W-105A. 6x dropsondes deployed as planned.

Maintained FL220 due to cirrus at FL260 and above. ATC informed us of an unexpected ALTRAV that would require us to climb to FL260, which was undesired for research. ATC offered a new routing that required us to early turn to the west and paralleled the original track to STINK then S to ZIBUT. HU got ahead 125 miles on WB leg, completed a racetrack for timing. Uneventful recovery to KFLI runway 08. Landed with #800 lbs.

Flight scientist report (Shingler):

Route was changed due to ATC conflict. New route KOQU-3900N6830W-STINK-ZIBUT-ATLIC-KFLI.

Solid low level clouds in the range of ~ 3-5 kft. Broad cirrus on the return flight that kept the B200 at FL220 for the majority of the flight.

On the final leg from ZIBUT - ATLIC there was a really nice even cloud deck from about 3-4 kft with a nice gradient in scattering increasing beneath the clouds as approaching the coast.

There as a near surface gradient in depol with higher depol seen between OUTES and ATLIC.

SONDES

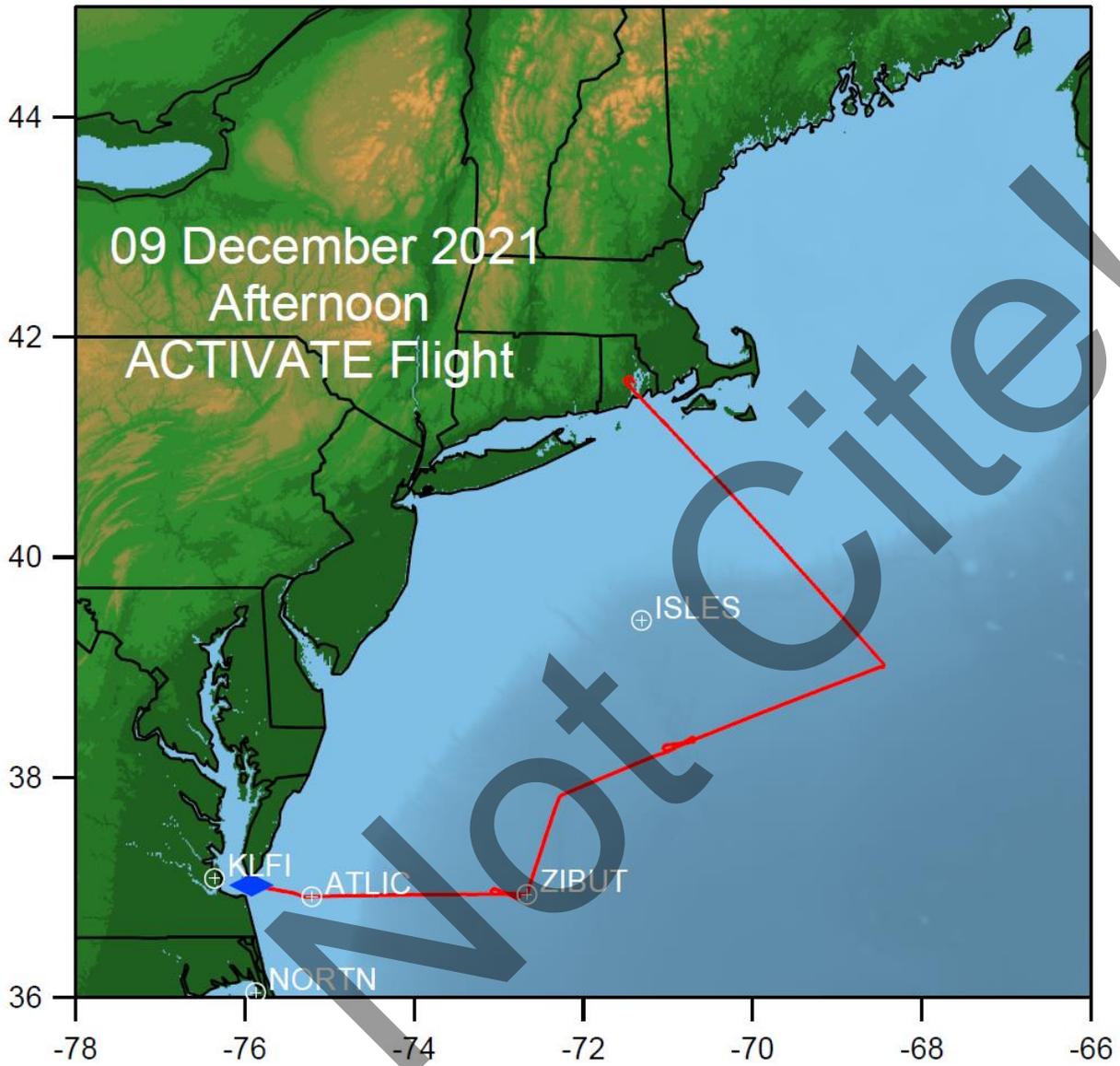
near coast, midway on first leg, at turn, midway to stink, ZIBUT, coast

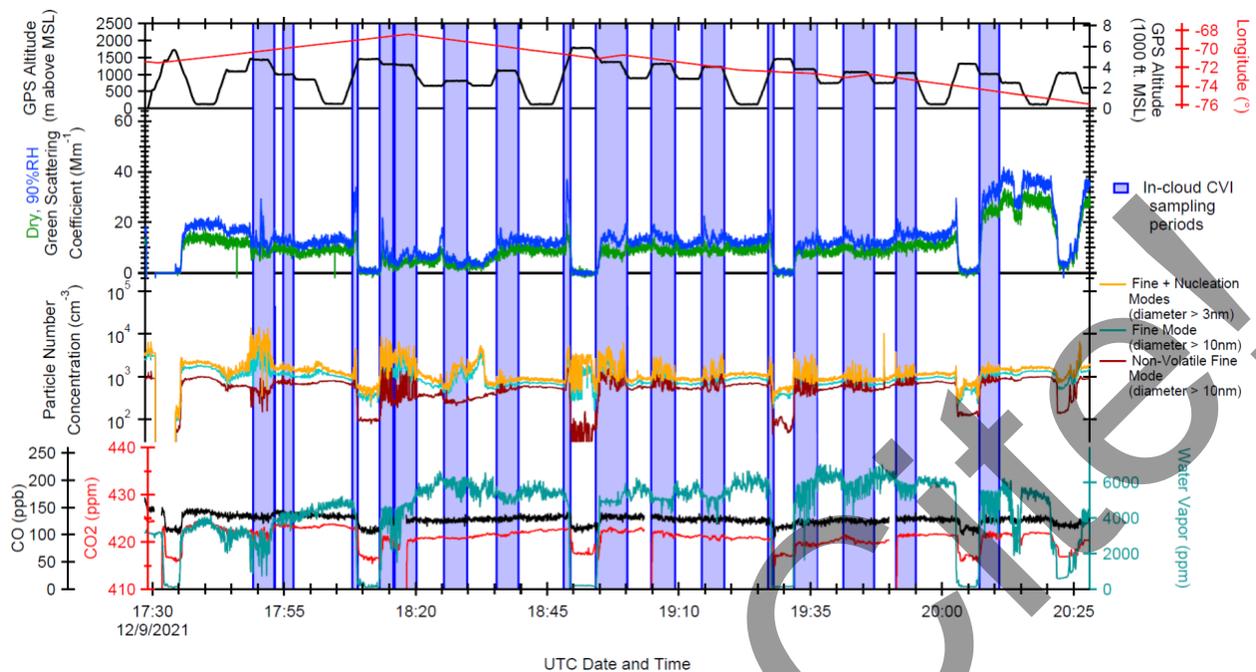
Falcon

Pilot report (Thorson):

Flight scientist report (Crosbie):

Return flight from Quonset. Return flight was through warning area 105. After take off, pilots cancelled IFR early so we were able to start modules very quickly. A brief profile to 6000ft was conducted upon takeoff followed by an immediate descent to MINALT. Cloudy modules followed. Cloud conditions started immediately but in the first 50km (30miles) the clouds were very small. The clouds then thickened quickly into fair weather Cu. We had to adjust the eastern extent because of airspace restrictions on the King Air and around this point, we did not see the same ice precip and more developed cloud as on the morning flight. After the turn towards STINK, the clouds filled in significantly and were similar to the morning in the region around ZIBUT. This persisted until after ZIBUT on the inbound. Then clouds thinned to small fair weather Cu with a well defined inversion on top. The aerosol conditions broadly mirrored the morning in that SO₄, ORG and NO₃ increased as we progressed towards shore. There was a power failure on the research systems about 5 mins before landing that meant that an orderly power down was not performed. Because of aircraft spacing due to winds aloft, the Falcon performed 2 reverse heading 3min legs before STINK and after ZIBUT. 4 full modules completed





Do Not

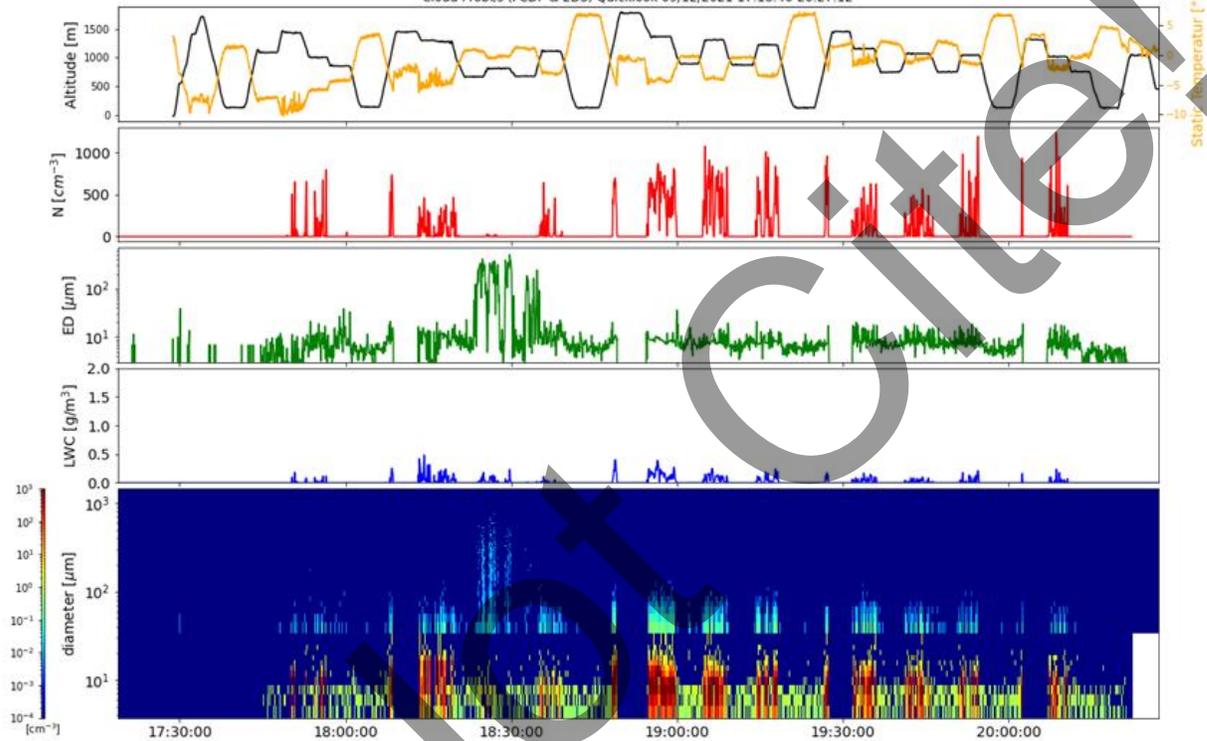
Quicklook ACTIVATE Cloud Probes (FCDP & 2DS) Quicklook

preliminary data, only for quicklook use

Simon Kirschler, Christiane Voigt, Richard Moore, Ewan Crosbie



Cloud Probes (FCDP & 2DS) Quicklook 09/12/2021 17:18:46-20:27:12



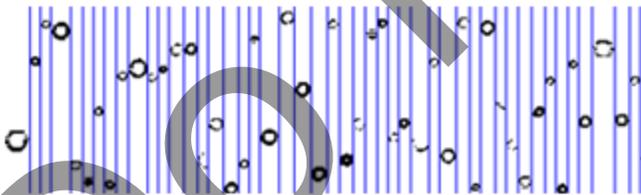
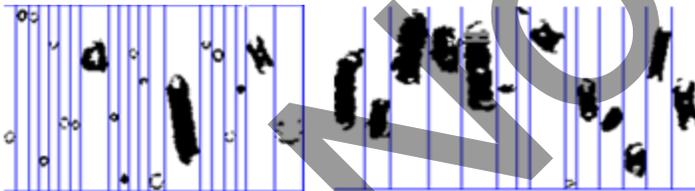
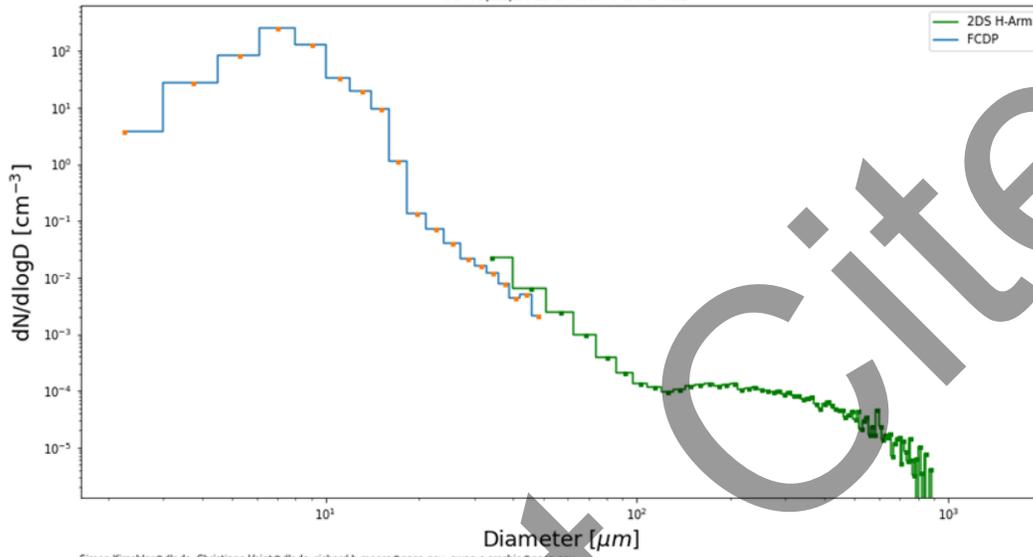
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PSD ACTIVATE

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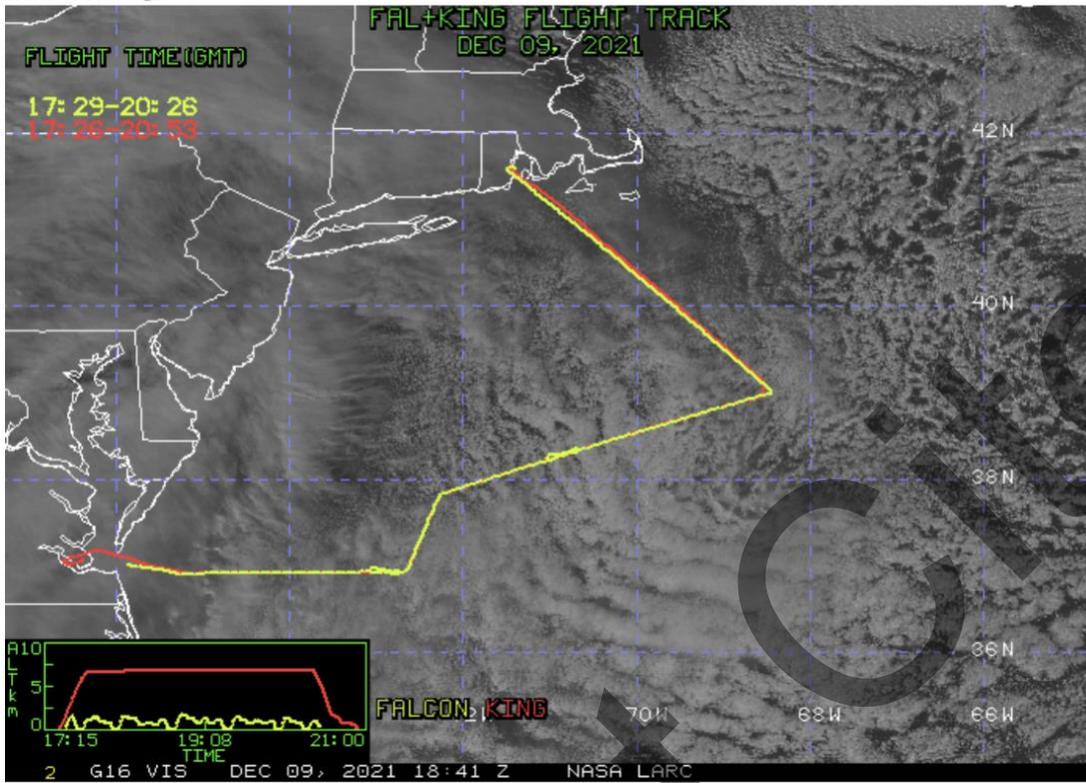
PSD 09/12/2021 17:18:46-20:27:12



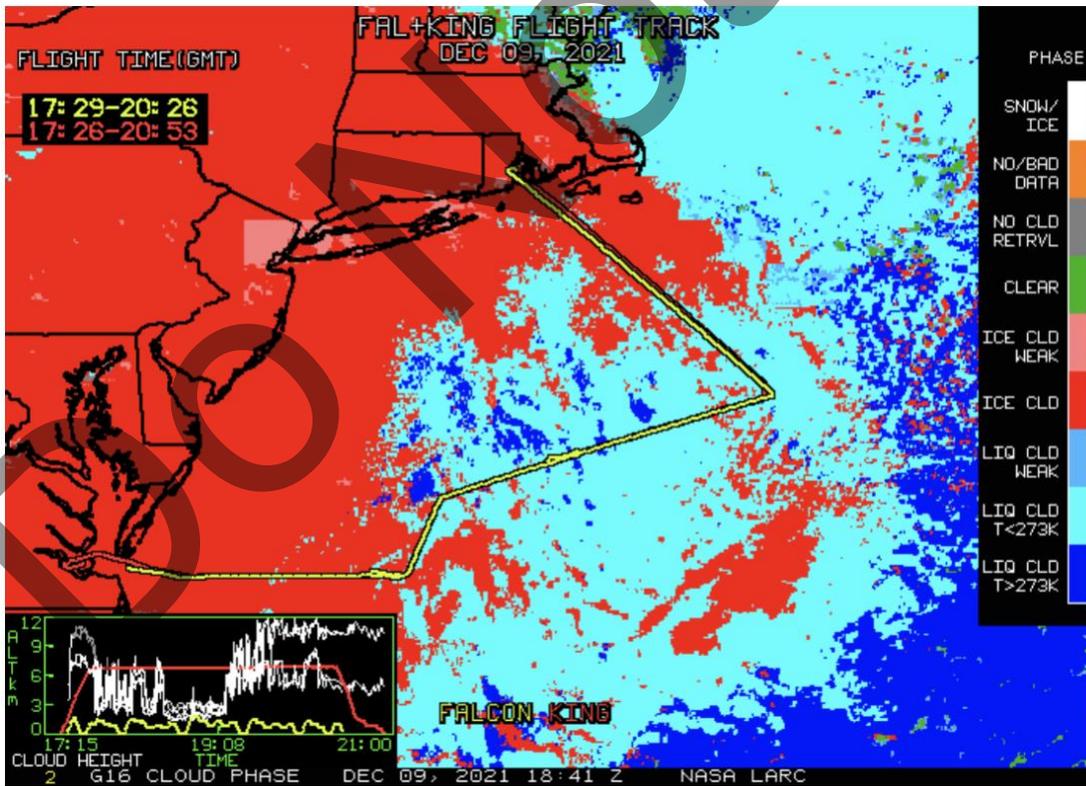
Mixed phase clouds and only ice precip

NASA-LaRC Clouds Group GOES-16 Quicklook Images for Flight 98, 18:41 UTC Dec 09, 2021

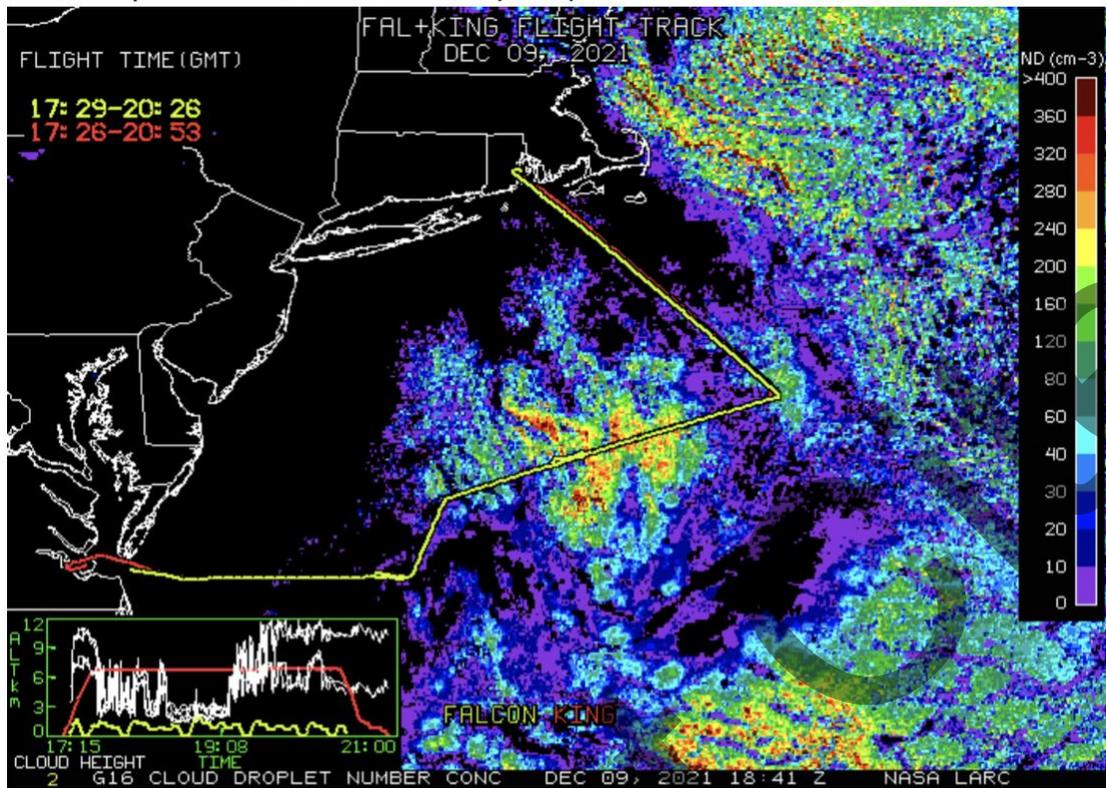
Visible Image



Cloud Phase



Cloud Droplet Number Concentration (cm-3)



Cloud-Top Height (Kft-ASL)

